

## Can cannabis aka ganja change the brain?

When a teenager smokes cannabis are they permanently damaging their brain and dulling their intellect for a lifetime?

The dangers of smoking cannabis, and the potential health benefits, have been a source of controversy for many years. The latest study on the drug suggested heavy and prolonged cannabis smoking as a teenager resulted in a permanently lower IQ. You can read Dominic Hughes's report on the findings [here](#). But how could cannabis have this effect on the brain and why might teenagers be particularly susceptible? The drug is made from the cannabis plant and contains more than 400 different chemicals, which could have a range of effects on the mind and body. It includes psychoactive chemicals, which act on the brain. The main element is a chemical called tetrahydrocannabinol (THC). This provides the "chilled out" sensation associated with smoking cannabis, but has also been linked to memory impairment. Brain chemistry Some of these chemicals are already in all our brains, cannabis smokers or not, as the brain has its own endocannabinoid system. Prof Val Curran, from the British Association for Psychopharmacology and University College London, said: "Any drug will affect the brain's natural chemistry. "We believe cannabis use can affect the natural cannabinoid system." But how could persistent use have a heightened impact on the teenage brain? The study noticed a difference between drug use before and after the 18th birthday. The first thing to note is the brain is constantly changing. Even reading this article or learning the face of someone new at work will leave an impression on your brain. However, the teenage brain changes on a dramatic scale, even IQ does not seem to be stable. In terms of size, the brain is pretty much done by the age of seven. But during adolescence the brain then ruthlessly prunes connections between brain cells, synapses, in the grey matter. Dr Anne-Lisa Goddings, who researches the teenage brain at University College London, said: "The brain produces loads of synapses, probably more than it needs, then it starts cutting down, making them more efficient." She said it was difficult to tell exactly how cannabis could alter the brain's development. However, she said during this period when the structure and function of the brain is changing, the organ might be more susceptible than an adult brain, which is relatively fixed. 'Too laid back' A consultant psychiatrist at Kings College London, Dr Zerrin Atakan, believes cannabis may be bit of a double-whammy for the brain. She said using the drug could directly affect the brain and was "bound to leave its imprint". But she thought heavy use could make you "too laid back to want to do anything". From not participating fully in school or not reading a book, or not meeting new people, she argues the experiences that can shape the mind are lost, meaning the brain does not develop. What we do not know is if cannabis is any worse than very heavy use of any other psychoactive drug in your teenage years? Prof Curran argues: "You would probably find the same thing in heavy drinking. We should not put cannabis on a pedestal." Source: BBC